15A NCAC 02D .0930 SOLVENT METAL CLEANING

(a) For the purpose of this Rule, the following definitions apply:

(1) "Cold cleaning" means the batch process of cleaning and removing soils from metal surfaces by spraying, brushing, flushing, or immersion while maintaining the solvent below its boiling point. Wipe cleaning is not included in this definition.

(2) "Conveyorized degreasing" means the continuous process of cleaning and removing soils from metal surfaces by operating with either cold or vaporized solvents.

(3) "Freeboard height" means for vapor degreasers the distance from the top of the vapor zone to the top of the degreaser tank. For cold cleaners, freeboard height means the distance from liquid solvent level in the degreaser tank to the top of the tank.

(4) "Freeboard ratio" means the freeboard height divided by the width of the degreaser.

(5) "Open top vapor degreasing" means the batch process of cleaning and removing soils from metal surfaces by condensing hot solvent vapor on the colder metal parts.

(6) "Solvent metal cleaning" means the process of cleaning soils from metal surfaces by cold cleaning, open top vapor degreasing, or conveyorized degreasing.

(b) This Rule applies to cold cleaning, open top vapor degreasing, and conveyorized degreasing operations.

(c) The provisions of this Rule shall apply with the following exceptions:

(1) Open top vapor degreasers with an open area smaller than 10.8 square feet shall be exempt from Subparagraph (e)(3) of this Rule; and

(2) Conveyorized degreasers with an air/vapor interface smaller than 21.6 square feet shall be exempt from Subparagraph (f)(2) of this Rule.

(d) The owner or operator of a cold cleaning facility shall:

(1) equip the cleaner with a cover and the cover shall be designed so that it can be easily operated with one hand, if:

(A) the solvent volatility is greater than 15 millimeters of mercury or 0.3 pounds per square inch measured at 100°F;

(B) the solvent is agitated; or

(C) the solvent is heated;

(2) equip the cleaner with a facility for draining cleaned parts. The drainage facility shall be constructed internally so that parts are enclosed under the cover while draining if the solvent volatility is greater than 32 millimeters of mercury or 0.6 pounds per square inch measured at 100°F. However, the drainage facility may be external for applications where an internal type cannot fit into the cleaning system;

(3) install one of the following control devices if the solvent volatility is greater than 33 millimeters of mercury or 0.6 pounds per square inch measured at 100°F, or if the solvent is heated above 120°F:

(A) freeboard that gives a freeboard ratio greater than or equal to 0.7;

(B) water cover if the solvent is insoluble in and heavier than water; or

(C) other systems of equivalent control, such as refrigerated chiller or carbon adsorption, approved by the Director;

(4) provide a permanent, conspicuous label, summarizing the operating requirements;

(5) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere;

(6) close the cover whenever parts are not being handled in the cleaner;

(7) drain the cleaned parts for at least 15 seconds or until dripping ceases; and

(8) if used, supply a solvent spray that is a solid fluid stream (not a fine, atomized, or shower type spray) at a pressure that does not cause excessive splashing.

(e) With the exception stated in Paragraph (c) of this Rule the owner or operator of an open top vapor degreaser shall:

(1) equip the vapor degreaser with a cover that can be opened and closed easily without disturbing the vapor zone;

(2) provide the following safety switches or devices:

(A) a condenser flow switch and thermostat or other device that prevents heat input if the condenser coolant is either not circulating or too warm;

(B) a spray safety switch or other device that shuts off the spray pump if the vapor level drops more than 10 inches; and

(C) a vapor level control thermostat or other device that prevents heat input when the vapor level rises too high;

(3) install one of the following control devices:
  (A) freeboard ratio greater than or equal to 0.75. If the degreaser opening is greater than 10.8 square feet, the cover must be powered;
  (B) refrigerated chiller;
  (C) enclosed design where the cover or door opens only when the dry part is actually entering or exiting the degreaser; or
  (D) carbon adsorption system with ventilation greater than or equal to 50 cubic feet per minute per square foot of air/vapor area, when cover is open, and exhausting less than 25 parts per million of solvent averaged over one complete adsorption cycle;

(4) keep the cover closed at all times except when processing workloads through the degreaser; and

(5) minimize solvent carryout by:
  (A) racking parts to allow complete drainage;
  (B) moving parts in and out of the degreaser at less than 11 feet per minute;
  (C) holding the parts in the vapor zone at least 30 seconds or until condensation ceases;
  (D) tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and
  (E) allowing parts to dry within the degreaser for at least 15 seconds or until visually dry;

(6) not degrease porous or absorbent materials, such as cloth, leather, wood, or rope;

(7) not occupy more than half of the degreaser's open top area with a workload;

(8) not load the degreaser to the point where the vapor level would drop more than 10 inches when the workload is removed from the vapor zone;

(9) always spray below the vapor level;

(10) repair solvent leaks immediately or shutdown the degreaser;

(11) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere;

(12) not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator;

(13) not use ventilation fans near the degreaser opening, nor provide exhaust ventilation exceeding 65 cubic feet per minute per square foot of degreaser open area, unless necessary to meet OSHA requirements (OSHA is the U.S. Occupational Safety and Health Administration; in North Carolina the N.C. Labor Department has delegation of OSHA programs); and

(14) provide a permanent, conspicuous label, summarizing the operating procedures of Subparagraph (4) through (12) of this Paragraph.

(f) With the exception stated in Paragraph (c) of this Rule, the owner or operator of a conveyorized degreaser shall:

(1) not use workplace fans near the degreaser opening, nor provide exhaust ventilation exceeding 65 cubic feet per minute per square foot of degreaser opening, unless necessary to meet OSHA requirements;

(2) install one of the following control devices:
  (A) refrigerated chiller; or
  (B) carbon adsorption system with ventilation greater than or equal to 50 cubic feet per minute per square foot of air/vapor area, when downtime covers are open, and exhausting less than 25 parts per million of solvent by volume averaged over a complete adsorption cycle;

(3) equip the cleaner with equipment, such as a drying tunnel or rotating (tumbling) basket, sufficient to prevent cleaned parts from carrying out solvent liquid or vapor;

(4) provide the following safety switches or devices:
  (A) a condenser flow switch and thermostat or other device that prevents heat input if the condenser coolant is either not circulating or too warm;
  (B) a spray safety switch or other device that shuts off the spray pump or the conveyor if the vapor level drops more than 10 inches; and
  (C) a vapor level control thermostat or other device that prevents heat input when the vapor level rises too high;

(5) minimize openings during operation so that entrances and exits will silhouette workloads with an average clearance between the parts and the edge of the degreaser opening of less than four inches or less than 10 percent of the width of the opening;
(6) provide downtime covers for closing off the entrance and exit during shutdown hours;
(7) minimize carryout emissions by:
    (A) racking parts for best drainage; and
    (B) maintaining the vertical conveyor speed at less than 11 feet per minute;
(8) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere;
(9) repair solvent leaks immediately, or shut down the degreaser;
(10) not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator; and
(11) place downtime covers over entrances and exits or conveyorized degreasers immediately after the conveyors and exhausts are shutdown and not remove them until just before start-up.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);*
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